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**ORNITHODOROS (ALECTOROBIUS) MUESEBECKI, N. SP., A
PARASITE OF THE BLUE-FACED BOOBY (SULA DACTYLATRA
MELANOPS) ON HASIKIYA ISLAND, ARABIAN SEA¹**
(IXODOIDEA: ARGASIDAE)

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ABSTRACT—*Ornithodoros (Alectorobius) muesebecki*, n. sp., described from adults parasitizing the Blue-faced (or Masked) Booby in its nesting grounds on a desolate island near the Arabian coast, is closely related to *O. (A.) amblus* Chamberlain of guano islands off the coast of Peru. Human beings working on oil rigs in the Persian Gulf, near the Arabian type locality, suffer severely from bites of a yet unidentified argasid species, possibly *O. (A.) muesebecki*, n. sp., as do laborers bitten by *O. (A.) amblus*.

Ornithodoros (Alectorobius) muesebecki, n. sp. is described from several adult specimens collected in the nesting ground of the Blue-faced (or Masked) Booby on a desolate island off the Arabian coast.

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It is closely related to *O. (A.) amblus* Chamberlain, which parasitizes birds on islands off the coast of Peru and, when it bites human beings, leaves persistently troublesome sores. Notably, laborers on insular oil rigs in the Persian Gulf, close to the type locality of the new Arabian species, are also bitten by argasids associated in nature with nesting ospreys, and the human victims suffer from allergic reactions, septic sores, and high temperature. An argasid nymph from the Persian Gulf, kindly sent to us by Dr. M. G. R. Varma of the London School of Hygiene and Tropical Medicine along with these medical notes, may represent *O. (A.) muesebecki*, n. sp., but is too badly damaged for positive identification.

This new species is dedicated to Mr. C. F. W. Muesebeck on his 75th birthday in token recognition of the selfless and devoted service that he has provided to several generations of entomologists throughout the world. The Jubilee for the ever helpful Curator Muesebeck thus extends to one of the most remote spots of arthropod-inhabited land on the globe.

***Ornithodoros (Alectorobius) muesebecki*, n. sp.**

Muesebeck's Arabian Booby Argasid

(Figs. 1-9)

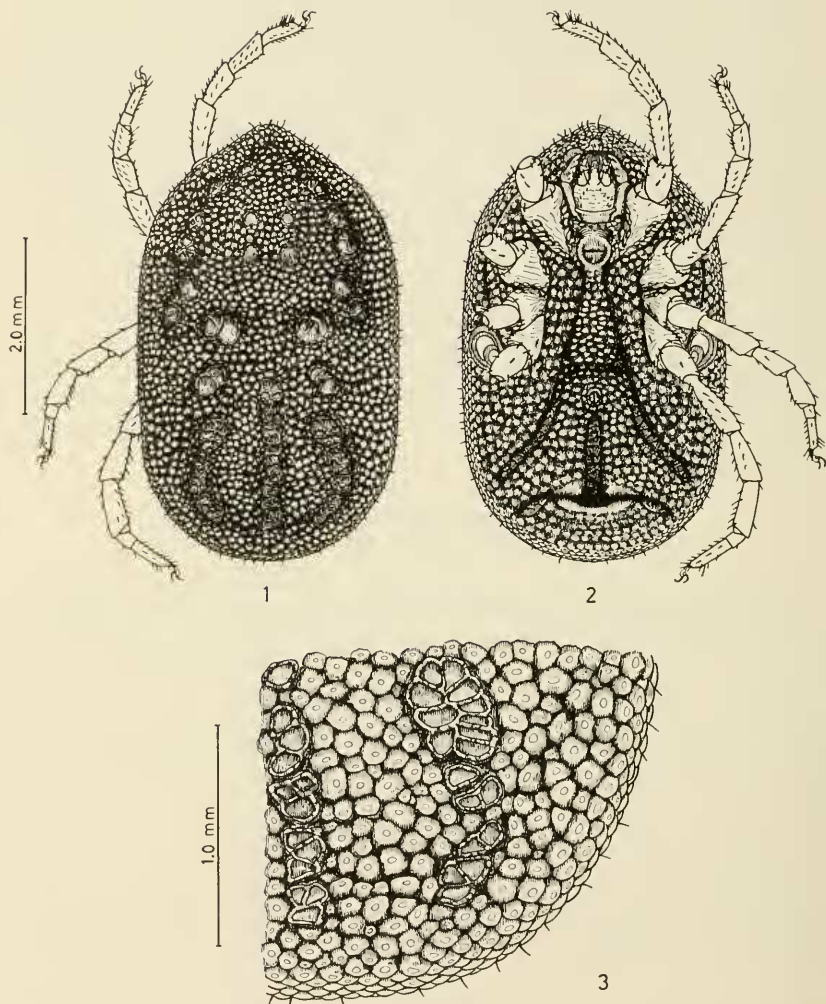
Holotype. Female, from soil under stone in nesting area of Blue-faced (or Masked) Booby (*Sula dactylatra melanops* Heuglin), Hasikiya Island (17°27.3'N, 55°36.3'E) (Kuria Muria Group, 40 km off coast of Arabia, South Yemen Republic; Arabian Sea), 10 March 1964, collected by personnel of Discovery Investigations, National Institute of Oceanography (England); forwarded by Peter M. David to BM(NH) (HH15,842). Deposited in British Museum (Natural History).

Allotype. Male, data and depository as for holotype.

Paratypes. Three females, 2 males, with same data as for holotype and allotype. One female and one male are deposited in the Rocky Mountain Laboratory, Hamilton, Montana (RML51,229); others in British Museum (Natural History).

FEMALE (figs. 1-6). *Body* (unengorged) measures 5 to 7 mm long and 3 to 4 mm broad; lateral integument elevated, margins straight, parallel; posterior margin abruptly rounded; anterior margin angular. *Color* (preserved) dark gray; legs and capitulum paler.

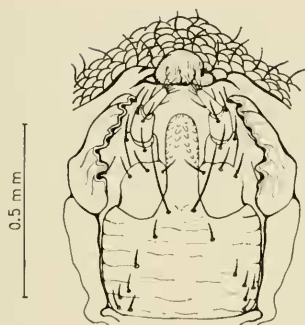
Dorsal integument (figs. 1, 3). *Mammillae* conspicuous, size mostly subequal, few small; outlines subcircular or irregular; rather closely spaced, deeply separated; surfaces rounded, smooth, shiny. *Discs* large, distinct; surfaces slightly depressed, ridged peripherally; arranged as 7 pairs bordering elevated margin anteriorly, 2 anteromedian pairs, 1 median pair (double or 2 joined pairs), 1 posteromedian pair, a posteromedian groove row of numerous closely spaced or adjacent discs, and 2 slightly shorter paramedian rows of similar discs. *Lateral margin* structurally



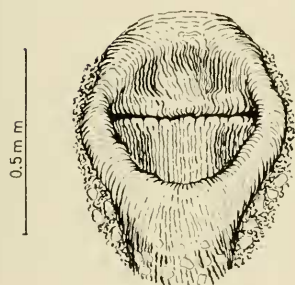
Figs. 1-3. *Ornithodoros (Alectorobius) muesebecki*, n. sp., paratypes (HH15-882): 1, ♀ dorsal view; 2, ♀ ventral view; 3, ♀ dorsal right quadrant.

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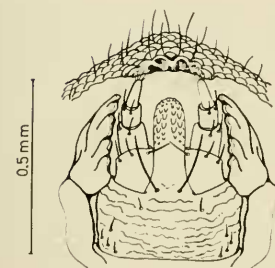
Figs. 4-9. *Ornithodoros (Alectorobius) muesebecki*, n. sp., paratypes (HH15-882): 4, ♀ capitulum; 5, ♀ genital area; 6, ♀ tarsi I-IV, external view; 7, ♂ capitulum; 8, ♂ genital area; 9, ♂ tarsi I-IV, external view.



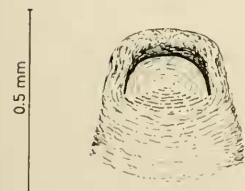
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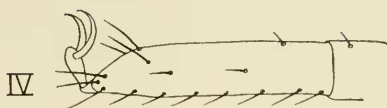
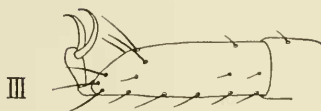
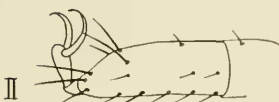
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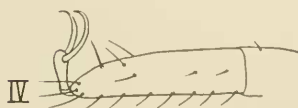
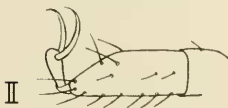
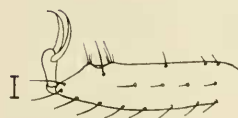
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undifferentiated; bearing a row of single, short, peripheral setae; *lateral suture* lacking. *Ventral integument* (fig. 2) with mammillae and discs as illustrated. *Hood* as a small knob (fig. 4).

Capitulum (fig. 4) situated in camerostome between genital area and anteroventral margin of body; not visible from dorsal view. *Cheeks* conspicuous, extending from a fleshy integumental fold beside basis capituli as a pair of narrow, irregularly folded lobes beside palpi; *hood* small, as an anteromedian knob with irregular mammillae. *Basis capituli* 1.6 times as broad as long, bearing 6 or 7 pairs of setae and a pair of posthypostomal setae arising at level of palpal insertion and extending to level of suture dividing palpal segments 2 and 3. *Palpi* with segment 1 globose, slightly longer than broad, bearing 3 anteroventral setae; segment 2 approximately one-half as long and two-thirds as broad as 1, bearing 2 anteroventral setae; segment 3 as long as but somewhat narrower than 2, bearing 2 anteroventral setae; segment 4 slightly longer and narrower than 3, bearing a pair of lateral setae and an apical setal tuft. *Hypostome* 2.5 times as long as broad, lateral margins parallel, apex bluntly rounded, extending to level of distal margin of palpal segment 3; corona small, inconspicuous; dental formula 2/2, denticles small, in files of 5 to 7 confined to anterior one-half of length of shaft.

Venter (figs. 2, 5). *Eyes* absent. *Spiracular plates* moderately large, situated laterad of coxa IV. *Genital area* as illustrated (figs. 2, 5). *Anus*, *ventral folds*, and *grooves* as illustrated (fig. 2). *Preanal grooves* narrow anterior of anus, thence wider, diverging with conspicuous discs to posterolateral body margins. *Median postanal groove* with conspicuous discs extending from anus to level of *transverse postanal groove*, which contains an organ (of undetermined function) with a fleshy posterior labium bordered on either side by 2 large adjacent discs. *Supracoxal folds* distinct. *Dorsoventral groove* absent.

Legs (figs. 1, 2, 6) comparatively long, narrow, all trochanters partially or entirely visible from dorsal view. *Tarsi* (fig. 6) narrowly elongate; dorsal surfaces of II to IV gradually tapering distally, dorsal surface of I somewhat truncate apicodorsally and thumblike apicoventrally; dorsal protuberances absent; chaetotaxy and claws as illustrated.

MALE (figs. 7-9). This sex resembles the female except that it measures approximately 4 mm long and differs in slight secondary sexual characteristics.

Capitulum (fig. 7). *Cheeks* as in female except that lobes are somewhat more crenulate. *Basis capituli* 2 times as broad as long, bearing 5 pairs of setae; posthypostomal setae approximately as in female. *Palpi* approximately as in female. *Hypostome* essentially as in female except that it may contain a few more denticles. *Genital area* as illustrated (fig. 8). *Tarsi* slightly shorter than those of female (fig. 9).

Other characters are essentially as in female.

NYPH AND LARVA. These stages are unknown.

RELATED SPECIES

Ornithodoros (Alectorobius) muesebecki, n. sp., is closely related to *O. (A.) amblyus* Chamberlain, 1920 (redescribed by Cooley and Kohls, 1944). Comparison of the type material of *amblyus* (in the Rocky Mountain Laboratory) and *muesebecki* (G. M. Kohls, personal communication) shows that in the new species tarsus I is much more

abruptly tapered; the mammillae are relatively smaller, sparser, less elevated, and more shiny; and the "knife edge flange" of palpal segment I (overlapping the hypostome base in *amblyus*) is much reduced (so much so that I do not clearly recognize it as such and have not included it in the description of the new species). *O. (A.) amblyus* is abundant on guano islands off the coast of Peru and produces "persistently troublesome" sores on the skin when it bites guano laborers; it has also been imported into the United States on guano (Cooley and Kohls, loc. cit.).

DISTRIBUTION AND HOSTS

Ornithodoros (Alectorobius) muesebecki, n. sp., is known only from the type locality, Hasikiya Island (17°27.3'N, 55°36.3'E) in the Arabian Sea. The ticks were recorded (Peter M. David, personal communication) as being exceedingly numerous in soft soil under stones where the Blue-faced (or Masked) Booby (*Sula dactylatra melanops* Heuglin) nests. These boobies and ticks comprised practically the only animal life seen on the island, where only a single species of plant was observed. Nests, spaced over the island at intervals of 1 or 2 yards, consisted of a small-stone carpet about 12 inches in diameter. In March, 1964, during the hot season, some nests held one egg, a few held 2, but most were without eggs. The wet, cooler, southwest monsoon period here is from May to August.

The host, *Sula dactylatra melanops* Heuglin, breeds on Socotra and Abd-el-kuri, Mait Island and Aibat on the Somali coast, and "perhaps" on islands off the Mekran coast (Meinertzhagen, 1954). Elsewhere, it breeds on Assumption, Seychelles, and Mascarene Islands in the west Indian Ocean. This bird has not been recorded in the Red Sea north of Port Sudan or in the Persian Gulf. In the Gulf of Aden, breeding occurs during July and August, or even slightly later, but in the southern part of the range between September and November. For nesting details see North (1946).

The term "booby" has been applied to these tropical gannets owing to their inability to resist the constant persecution they suffer in tropical waters from frigate birds (*Fregata*), who swoop down on them as soon as they have caught a fish. These boobies (*melanops*) often fish in very shallow water, sometimes barely 4 feet deep. They also accompany fishing craft, soaring so close over fishermen's heads that many are pulled down by the legs. Allied races occur in tropical waters of the Atlantic and Pacific oceans and around Australia.

ACKNOWLEDGMENTS

Mr. Keith H. Hyatt of the British Museum (Natural History) kindly sent this interesting material for study and description. Dr. Peter M. David of the National Institute of Oceanography provided the

collecting data and observations. Dr. Glen M. Kohls kindly compared the material reported here with type specimens of *O. (A.) amblyus*. Dr. M. G. R. Varma furnished a specimen from near the type locality; this may or may not represent the new species but points up to the frequent medical importance of argasids inhabiting breeding grounds of marine birds.

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MUESEBECKELLA, A NEW GENUS OF FLEA FROM NEW GUINEA,
WITH NOTES ON CONVERGENT EVOLUTION¹
(SIPHONAPTERA: PYGIOPSYLLIDAE)

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ABSTRACT—*Muesebeckella*, n. gen., is described and illustrated on the basis of *M. mannae*, n. sp. and *M. nadi*, n. sp., both from *Pseudocheirus* sp. in the mountains or foothills of the Territory of Papua and New Guinea. *Muesebeckella* is near *Striopsylla* Holland, 1969, and *Ernestinia* Smit, 1953, and the flattened head and spiniform or stout frontal bristles of all three genera of fleas are believed to be adaptive modifications for remaining on the host. Notes are included on convergent evolution and on structural developments on certain groups of Siphonaptera.

Scientists familiar with the multitude of significant contributions made by C. F. W. Muesebeck to the study of Hymenoptera may be surprised to see an article on Siphonaptera in a Jubilee Volume dedicated in his honor. It would seem that an entomologist who had accomplished so much in such a difficult field and who also nevertheless somehow managed to serve as an authority on the principles of taxonomy and on the standardization of common names of insects, could

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